

REMARKS

Claims 3, 6-17, 20, 23-33, 35-36, 38-40, 42, 43 and 46 are pending in the present application. Claims 38, 43 and 46 are amended.

At the outset, applicant thanks the Examiner for indicating in paragraphs 4 and 5 of the Office Action that claims 3 and 6-10 are allowed, and dependent claims 12-13, 15-16, 24-25, 27-28, 30, 32 and 35-36 are allowable.

In paragraphs 1 and 2 of the Office Action, claims 11-17, 20, 23-30, 33, 35-36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,871,071 (Takao) in view of U.S. Patent No. 6,799,045 (Brouwer) and U.S. Patent No. 6,671,512 (Laakso). The Examiner's rejection on this ground is respectfully traversed.

Independent claims 11 and 14 recite "controlling [] transmission power of a common control signal which governs a scope of service area that a radio base station forms to suppress interference [between service areas]." Neither Takao nor Brouwer nor Laakso alone, or in combination, disclose the above-recited limitations. Accordingly, the Office Action fails to establish a *prima facie* case of obviousness.

As an initial point, Takeo does not disclose detecting interference between plural base stations. The Office Action expressly admits this on page 4, stating that, "Takao et al does not specifically disclose the steps of controlling transmission power of a common control signal, which governs a scope of a service area that a radio base station forms, for interference suppression in response to said occurrence of interference based on radio link quality information; detecting the occurrence of interference based on radio link quality information notified from each of said radio base stations." Brouwer fails to cure.

The Office Action alleges that Brouwer "discloses the steps of controlling transmission power of a common control signal, which governs a scope of a service area that a radio base station forms, for interference suppression in response to said occurrence of interference based on radio link quality information notified from each of said radio base stations." Applicant respectfully disagrees.

Brouwer teaches power control of mobile handsets, not base stations. Brouwer teaches determining “the load situation of a cell . . . without the need to measure that load condition by counting transmit power control commands issued in the cell . . . which are determined to be reliable,” not based on interference between base stations servicing different service areas, but rather, based on interference of mobile stations in the current cell. Brouwer, col. 3, l. 58 to col. 4, l. 55. Brouwer discloses that an “admission/congestion controller . . . takes action where necessary to regulate traffic conditions in the cell if an overload or congested condition is detected.” Brouwer, col. 10, ll. 45-48. Thus, Brouwer teaches detecting or preventing interference *in the cell*. Brouwer does not disclose the claimed limitation of “controlling transmission power . . . for interference suppression . . . between service areas,” as recited in claims 11 and 14. Further, Brouwer’s teaching that the transmit power controller “performs power control operations based messages received from the RNC and/or from mobile stations” means that the controller controls mobile station transmit power, not base station transmission power of a common control signal, as argued by the Office Action. Applicant respectfully submits that the Office Action misinterprets the teachings of Brouwer, which clearly expresses that the transmit power controller issues “transmit power control commands . . . to a particular mobile station [and ensures that the issued commands] are reliable.” Brouwer, col. 11, ll. 10-12(emphasis added). Therefore, Brouwer cannot cure the deficiencies of Takao, because it does not even control base station transmitted power for the common control signal based on interference between plural base stations. Like Brouwer, Laakso fails to cure.

Laakso discloses a method for traffic load control of a cell in a telecommunication network. Laakso, Abstract. Laakso discloses a two-stage load control method, where the first stage is carried out in the base station, and “mainly influences transmission power in uplink and/or downlink.” Laakso, col. 3, ll. 44-63. A second stage of load control occurs in the radio network controller, which mainly controls transmission bit rates. *Id.* But any teaching by Laakso of controlling downlink transmission power in a cell based on load (*i.e.*, the amount of communications traffic generated by the number of mobile stations served by the cell) is not disclosure of controlling “transmission power of a common control signal which governs a scope of service area that a radio base station forms to suppress interference [between service areas],” as required by the claims. After review of the entire disclosure of Laakso, Applicant failed to find where Laakso discloses controlling a common channel transmission power based on

interference between cells. If the Examiner is aware of such disclosure, Applicant respectfully requests that the Examiner provide a precise citation indicating such. Applicants respectfully disagree with the assertion on page 5 of the Office Action that “It is clear that Brouwer and Laakso discloses the steps of controlling transmission power of a common control signal . . . for interference suppression in response to said occurrence of interference between service areas provided by plural radio base stations.” In the absence of any teaching or suggestion of the claimed limitations, Applicants believe that claims 11 and 14 are patentably distinct over the combination of Takao, Brouwer and Laakso.

In paragraph 3 of the Office Action, claims 17, 20, 23, 26, 29, 31, 33, 38-40, 42-43 and 46 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Takao in view of Laakso. The Examiner’s rejection on this ground is respectfully traversed.

Independent claims 17 and 20 each recite distributively controlling a load based on “the sum of sets of link utilization information collected from [respective] radio terminals for each radio base station.” Independent claim 43 recites a radio resource management apparatus comprising “means for distributively controlling a load, being a radio terminal accommodated in a radio base station, based on radio link quality information provided by plural radio terminals, including the sum of sets of link utilization information collected from radio terminals for each radio base station.” Neither Takao nor Laakso, alone or in combination, disclose this limitation. Indeed, the Office Action admits that Takao does not disclose this limitation. See Office Action pages 8 and 10. Laakso fails to cure the deficiencies of Takao.

Laakso discloses controlling an overload, namely when the total base station downlink transmission power exceeds a threshold. Laakso, col. 17, ll. 6-9. The cited portions of Laakso (col. 2, ll. 1-55; col. 3, l. 32 – col. 4, l. 34; col. 10, ll. 5-67; col. 11, ll. 4-64; col. 12, ll. 26-55; col. 15, ll. 6-41; col. 16, l. 45 – col. 17, l. 67; and col. 20, l. 54 – col. 21, l. 17) do not disclose controlling a load based on “the sum of sets of link utilization information collected from [respective] radio terminals for each radio base station.” Applicants could find no disclosure of this claimed feature in the extensive portions of Laakso cited in the Office Action. If the Examiner is aware of this feature as being taught or suggested by Laakso, Applicant respectfully requests a specific citation thereto. Therefore, Applicant believes that neither Takao nor Laakso teaches summing of sets of link utilization information collected from radio terminals for each

radio base station, as required by claims 17, 20 and 43. Accordingly, Applicant urges that neither Takao nor Laakso teach each and every limitation of independent claim 17, 20 and 43, and respectfully submits that each of these claims are in condition for allowance and urges reconsideration and withdrawal of the rejections thereto.

Independent claims 23 and 26 each recite: “controlling transmission power of a radio base station based on said information of radio link qualities from plural radio terminals.” Independent claim 38 recites a radio resource management apparatus comprising a processor and a computer readable program that causes the apparatus to “distributively controlling a load, being a radio terminal accommodated in a radio base station, based on said radio link quality information provided by plural radio terminals.” Independent claim 39 recites a radio resource management apparatus comprising a processor and a computer readable program that causes the apparatus to perform steps comprising “controlling transmission power of a radio base station, based on said radio link quality information provided by plural radio terminals.” The Office Action admits in pages 12 and 13 that Takao does not disclose this limitation. Laakso fails to cure the deficiencies of Takao.

The Office Action alleges that Laakso teaches adjusting base station transmission power, and provides the same extensive citation to Laakso discussed above in connection with claims 17 and 20. But Laakso only teaches base station transmission power control during an overload condition, and not “based on information of radio link qualities from plural radio terminals,” as required by claims 23, 26, 38 and 39. Applicants could find no disclosure of this claimed feature in the extensive portions of Laakso cited in the Office Action. Accordingly, neither Takao nor Laakso teach or suggest “controlling transmission power of a radio base station based on information of said radio link qualities from plural radio terminals,” as required by independent claims 23, 26, 38 and 39. If the Examiner is aware of this feature as being taught or suggested by Laakso, Applicant respectfully requests a specific citation thereto. Accordingly, Applicant believes that independent claims 23, 26, 38 and 39 are presently in condition for allowance and urge reconsideration and withdrawal of the rejections thereto.

Independent claim 29 recites “receiving information of radio link qualities from plural radio terminals” and “controllably changing a frequency used by a radio base station based on said information of radio link qualities from plural radio terminals.” Independent claim 31

recites a radio resource management apparatus comprising a controller that “changes a frequency used by a radio base station based on radio link quality information provided by plural radio terminals.” Independent claim 40 recites a radio resource management apparatus comprising a processor and a computer readable program that causes the apparatus to perform steps comprising “changing a frequency used by a radio base station, based on said radio link quality information provided by plural radio terminals.” The Office Action admits on page 15 that Takao does not disclose the limitations recited above in claims 29, 31 and 40. The Office Action does not address claim 31. The Office Action alleges that Laakso teaches the limitations of claims 29 and 40 recited above, but again provides the same extensive citation to Laakso, in which disclosure of this recited limitation is lacking. Without any suggestion or teaching of the claimed limitations, claims 29, 31 and 40 are allowable over the cited art of record. Accordingly, Applicant respectfully submits that claims 29, 31 and 40 are presently in condition for allowance and urges reconsideration and withdrawal of the rejection thereto.

Independent claim 33 recites a radio terminal that includes “means for responding distributed control indication for a load being a radio terminal accommodated in a radio base station, based on said radio link quality information, said distributed control indication being created from said radio resource management apparatus, and switching a radio base station to be connected.” Independent claim 46 recites a radio terminal comprising a processor and a computer readable program that causes the terminal to perform steps comprising “responding to a distributed control indication of a load based on said radio link quality information including the sum of sets of link utilization information collected from radio terminals . . . and thus switching a radio base station to be connected.” The present Office Action admits on page 16 that Takao fails to disclose this limitation. Laakso fails to cure the deficiencies of Takao. The Office Action alleges that Laakso teaches this limitation, but again provides the same extensive citation to Laakso, in which disclosure of this recited limitation is lacking. Without any suggestion or teaching of the claimed limitations, claims 33 and 46 are allowable over the cited art of record. Accordingly, Applicant respectfully submits that claim 33 and 46 are presently in condition for allowance and urges reconsideration and withdrawal of the rejection thereto.

Independent claim 42 recites a radio resource management apparatus comprising a processor and a computer readable program that causes the apparatus to perform steps

comprising “responding to occurrence of interference between plural service areas and controlling transmission power, to suppress interference autonomously.”

Takeo does not disclose detecting interference between plural base stations. The Office Action expressly admits this on page 4, stating that, “Takao et al does not specifically disclose the steps of controlling transmission power . . . for interference suppression.” Laakso fails to cure.

Laakso discloses controlling an overload, namely when the total base station downlink transmission power exceeds a threshold. Laakso, col. 17, ll. 6-9. The cited portions of Laakso (col. 2, ll. 1-55; col. 3, l. 32 – col. 4, l. 34; col. 10, ll. 5-67; col. 11, ll. 4-64; col. 12, ll. 26-55; col. 15, ll. 6-41; col. 16, l. 45 – col. 17, l. 67; and col. 20, l. 54 – col. 21, l. 17) do not disclose controlling transmission power for interference suppression between plural service areas. Applicants could find no disclosure of this claimed feature in the extensive portions of Laakso cited in the Office Action. If the Examiner is aware of this feature as being taught or suggested by Laakso, Applicant respectfully requests a specific citation thereto. Therefore, Applicant believes that neither Takao nor Laakso teaches controlling transmission power for interference suppression between plural service areas, as required by claim 42. Accordingly, Applicant urges that neither Takao nor Laakso teach each and every limitation of independent claim 42 and respectfully submits that claim 42 is in condition for allowance and urges reconsideration and withdrawal of the rejections thereto.

In view of the above remarks, Applicant believes the pending application is in condition for allowance.

Dated: June 30, 2009

Respectfully submitted,

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